Samples & Information

Psychology 400
"Perception"

This document contains a variety of information relevant to performing well on the course exams for PSY 400 (Perception).

Course Text in Use:

Coren, Ward & Enns (2004).
Sensation and Perception, 6th edition

North Carolina State University

INSTRUCTIONS AND ADVICE FOR PART 1 OF PSY 400 EXAMS, followed by a variety of Sample Items

"General Instructions:

"This is the first part of a two-part examination. When you are completely finished with Part 1 (Objective Questions), you may turn it in and get the second part of the examination (the Identifications portion).

"For each question in Part 1, blacken the space on the special answer sheet that corresponds to the BEST answer. On these multiple-choice questions, remember that the best answer may be "both a and b" or "all of the above," etc. On true-false items, you are to judge the truthfulness of the statement taken in its entirety; if any portion of the statement is *clearly* not true, then the statement should be marked "false." (Hint: Most "false" items will have at least two different things wrong with them. They are not intended to be "trick" questions. Thus, an item will not be false just because there may be a trivial misspelling.)

"Although ALL answers to Part 1 must go on the special answer sheet, if they are to be graded, you are welcome to mark up the Exam itself however is helpful. When finished with Part 1, make sure that your name is on ***both*** the examination itself ***and*** the answer sheet before you turn them in. Each item of Part 1 is worth 1 point (no part score on an item). Maximum for this section of the examination [will be 28 points for each in-class Exam and 60 points for the Final Exam]."

Note that although most of the following sample multiple-choice questions (or ID items) are relevant for the current semester, lecture content is not completely fixed. Sometimes the coverage of a particular topic may need to be modified in the interests of time or for the purpose of overall clarity. When such an alternation occurs, it might make an occasional multiple-choice question (or ID item) inappropriate. In the event this happens, the affected item would, of course, not be used on your actual exam.

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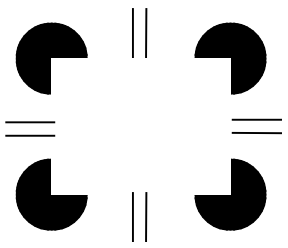
FIRST Examination – Sample Multiple-Choice Items

1. One important idea presented during the first lecture was the notion embodied by the figures shown below. Which idea is illustrated by this demonstration?

A. We always perceive the world exactly as it really exists.
B. Perception is a passive process of assimilating the information that happens to reach your eyes (or ears, or nose, etc.)
C. Knowledge of anatomy/physiology is important for understanding perception.
D. There is a difference between perceiving and conceiving.
E. Both B and D.



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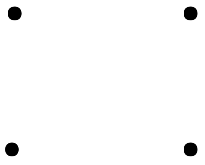


Right

2. Although psychophysical methods are often studied in the context of simple laboratory experiments, such techniques also have application to a variety of more interesting and important problems. For example, when an engineer examines x-rays of an oil pipeline, to determine if the joints were welded properly, the task involves basic issues of psychophysics.

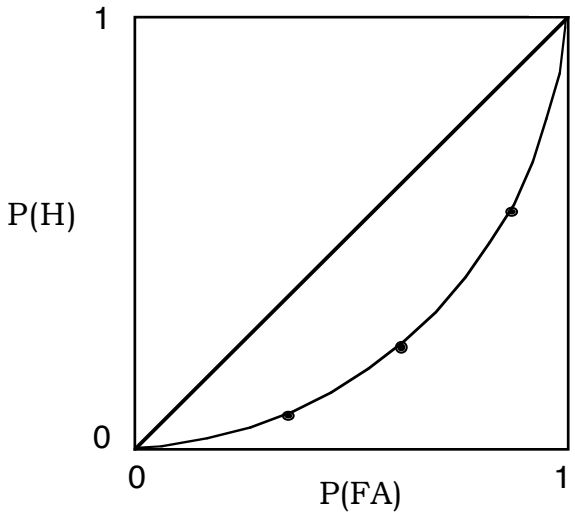
A. True.
B. False.

3. Which of the following is **TRUE**?

A. From the earliest days of psychophysics, efforts to measure thresholds have involved the intentional, systematic manipulation of observer response biases.
B. Using Fechner's methods, the value of the threshold may be influenced by factors such as the observer's motivation or expectations.
C. There is always some specific energy value at which observers reliably change from never "experiencing" the stimulus to always "experiencing" it.
D. Both A and C.
E. Both B and C.

4. Ernst Weber studied how people discriminate among the various stimuli which make up their environment. As a result of his investigations, he postulated the relationship now known as Weber's Law: **JND = K x I**. Considering the meaning of this law, which of the following statements about **K** is (are) **TRUE**?

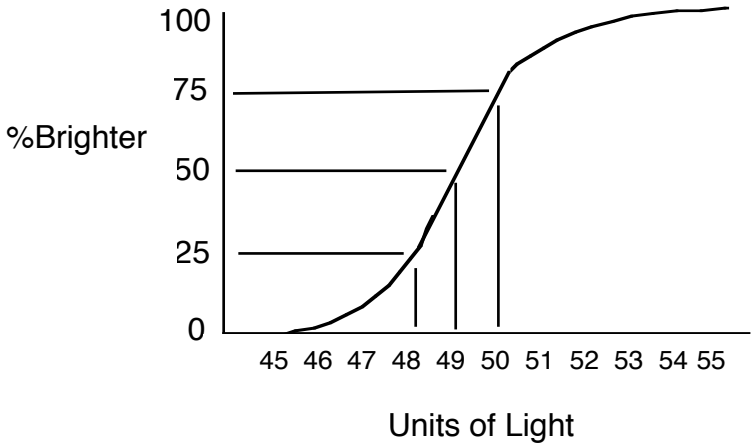
A. It is usually expressed in the same units as the **JND**.
B. It can be used to compare discriminability across different sense dimensions.
C. The value of **K** usually equals **m x I/ΔI**.
D. The value of **K** is always about the same, regardless of the stimulus dimension examined; in fact, except for the sense of taste, **K** always equals 0.147.
E. Both A and C.



5. Imagine that the above graph represents the results from a simple YES-NO Signal Detection experiment, such as the one discussed in class. The well-meaning subject was asked to press one button after any trial during which he thought a signal had been presented, and to press another button after each trial without any signal. From the ROC curve shown, we can be pretty confident that the subject:

A. Was probably confused about the instructions.
B. Was always very cautious about responding.
C. Was very good at detecting all possible hits.
D. Performed at only chance levels.
E. Said "yes," most of the time, when there was, in fact, no signal.

6. Which of the following pairs of names and ideas correctly match?
A. Stevens; recommended using "magnitude estimation" for developing psychophysical scales.
B. Weber; developed the three so-called "classical methods" of psychophysics.
C. Coren; first suggested that JNDs would always be proportional to the standard.
D. All of the above.
E. None of the above.



7. Assume that the above data come from a simple psychophysical experiment involving the discrimination of two brief flashes of light, one fixed and the other varying in intensity. Given the information provided, what would be the best estimate of the Interval of Uncertainty?
A. 49 units.
B. 24.5 units.
C. 2 units.
D. 1 unit.
E. The 50th percentile.

8. George is participating in an experiment. He is asked to look at a pair of lights. The first light has a constant intensity; the experimenter varies the intensity of the second light *randomly* from trial to trial. George is always asked whether the second light looks brighter *or* dimmer than the first. He is not allowed to respond "equal." On the basis of this description, what can you reasonably say about the experiment?
A. The experimenter is probably using the Method of Constant Stimuli.
B. The experimenter is probably using the Method of Limits.
C. The experimenter is probably using the Method of Adjustment.
D. The experimenter is using a technique known as "forced-choice."
E. Both A and D.

9. Which of the following is **FALSE**?
A. Traditional "threshold" values may be influenced by factors such as an observer's expectations.
B. The amount of change required, in order to just notice that change, increases as the overall intensity of stimulation increases.
C. According to Stevens, an Absolute Threshold can best be calculated by adding JNDs until a stimulus is just detectable.
D. The 50%ile value on the traditional psychophysical curve is generally accepted as a measure of the Absolute Threshold.
E. Today, an experimenter would be more likely to use a measure called d' to compare individuals or conditions (rather than a "threshold").

10. There is a structure in the human eye which is normally invisible, but which can be seen when a small, moving source of light is directed into the eye. The resulting pattern is called the Purkinje Tree. There is another structure of the eye called the choroid. What do these structures have in common?

A. They both provide support for the lens and enable it to change shape.
B. They both absorb light before it can reach *any* of the receptors.
C. They both carry neural information from the receptors.
D. They're both mechanisms in the iris that serve to regulate how much light can enter the eye.
E. They both provide nourishment to the retina.

11. The human eye is customarily divided into three "chambers." Which of the following can be found within the SAME one of these chambers?

A. The aqueous and the ciliary muscles.
B The macula/fovea and the Zonulary Canals.
C. The vitreous humor and the lens.
D. Macula and the lens.
E. Optic disc and the cornea.

12. You decide to take a stroll through the neighborhood on a brisk winter evening. The sky is cloudless and lots of stars are visible. Some of the stars are quite faint, and you notice that you are better able to see them when you look somewhat off to the side, rather than directly at them. How do you explain this?

A. You needed to use foveal vision where acuity is highest.
B. The cones in the periphery of your retina are more sensitive.
C. The maximal density of your rods occurs away from the center of vision.
D. Light from the stars in question needed to fall on your optic disk where sensitivity is highest.
E. You had to "rake the leaves" which fell from your Purkinje tree.

13. As you change your fixation from a *distant* object to an object less than an arm's length away, which of the following changes occur inside your eyes?

A. The ciliary muscles relax, putting more tension on the zonule fibers.
B. The ciliary muscles contract, putting more tension on the zonule fibers.
C. The lens becomes more rounded.
D. Both A and C.
E. None of the above.

14. The power of a lens to bend light rays is frequently measured in diopters. Which of the following statements is (are) **TRUE**?

A. The lens of the eye must accommodate by 4 diopters, in order for the eye to be properly focused for a distance of 4 meters.
B. The total combined power of the cornea and lens in a normal young adult eye can vary from approximately 0 to 72 diopters.
C. Focusing properly for far away objects requires more accommodation (i.e., a stronger lens) than focusing for nearby objects.
D. Both A and C.
E. None of the above.

15. Which of the following statements is (are) **TRUE**?

A. Four pairs of intraocular eye muscles are attached to the outside of each eye.
B. The extraocular muscles directly control how much light can enter the pupil.
C. As one might expect, all movements of the eyes can be described as some combination of vertical and/or horizontal change in fixation.
D. Repetitive back-and-forth eye movements can result from rotation around one's vertical axis.
E. Both C and D.

16. During the everyday use of our eyes, different types of eye movements occur in complex and constantly changing patterns. Common motions include:
A. Very rapid and abrupt "jumps" in fixation.
B. Very small "tremors."
C. Slow drifting movements.
D. Rotation of the two eyes in opposite directions.
E. All of the above.

17. **Hyperopia** and **presbyopia** are SIMILAR in that:
A. Each condition results from an abnormal length for the eyeball.
B. Each condition can produce difficulty in seeing nearby objects clearly.
C. Individuals with either condition usually retain a full 12-diopter range of adjustment.
D. Surgery with lasers is the preferred treatment for both kinds of condition.
E. All of the above.

18. In so-called "open-angle" glaucoma, the threat to vision arises from which of the following?
A. Interference by the iris of the outflow of the aqueous humor.
B. Too much vitreous humor entering the eye through the Purkinje Tree.
C. Folds in the cornea may completely block the Canals of Schwartzkopf.
D. Excess intraocular pressure reduces the blood supply for the retina.
E. Both C and D.

19. Suitable treatment for a severe cataract would currently include:
A. Using special chemicals to remove a gray film from the surface of the cornea.
B. Removing the natural lens of the eye.
C. Treating the condition first with eye-drops; then, if necessary, using a very tiny scalpel to remove the portion of the lens that has lost its transparency.
D. Inserting a fairly strong artificial plastic lens inside the eye.
E. Both B and D.

20. Dr. Owens is interested in how the eyes focus when there is nothing at all to look at (i.e., in darkness). He discovers that, on the average, people's eyes tend to focus at an intermediate distance. There is, however, a good deal of individual variability. Such findings may be important, because:
A. They predict that most people will be safe drivers at night or in bad weather.
B. How the eyes focus in total darkness predicts your telepathic abilities.
C. They predict how well people perform visual tasks under conditions of poor visibility.
D. They predict the time that it will take a person's eyes to become fully adapted to seeing in very low levels of light.
E. Both C and D.

21. Visual acuity refers to an observer's ability to resolve small visual details. With a typical eye chart made up of letters, for example, normal observers can correctly resolve details having a visual angle of 1 min-of-arc. Which of the following statements about visual acuity or its measurement is (are) **TRUE**?
A. Acuity of 20/40 represents poorer vision than acuity of 6/6.
B. The physical size of receptors is all important; details can never be seen if they are smaller than approximately twice the diameter of a retinal cone.
C. Under optimal conditions, so-called "vernier acuity" is much better than "recognition" acuity (e.g., performance on the wall chart described above).
D. Both A and C.
E. All of the above.

22. When light levels are very low, it is possible to see a mid-wavelength light, but not be able to recognize that it is green. Long-wavelength light, however, is almost always seen as red, no matter how faint it gets --- provided that it is visible at all. This ability to recognize the red light *at almost any intensity* depends most clearly upon:

A. The fact that full dark adaptation may take as long as 30 minutes.
B. The similarity in spectral sensitivity of rods and cones at long wavelengths.
C. The existence of four types of cone receptors.
D. The fact that rods are always much more sensitive to light than are cones.
E. All of the above.

23. Which mechanism does **NOT** contribute to the process of becoming dark adapted?

A. The size of the pupil increases.
B. The cone receptors increase their sensitivity to light.
C. The threshold of the rod receptors increases.
D. The photochemical pigment rhodopsin regenerates.
E. Neural adjustments cause the bipolar cells to increase their responsiveness.

24. In which of the following situations would one's vestibular system likely respond?

A. As you settle into your seat on the train, it begins to accelerate along the curved section of track that will take it out of the station.
B. You suddenly lean/tilt way back in your reclining lounge chair.
C. Your car on the roller coaster begins to accelerate as it enters its first turn.
D. Both A and C.
E. All of the above.

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SECOND Examination – Sample Multiple-Choice Items

1. Which of the following lobes of the cortex is (are) involved in the processing of information important for visual perception?

A. Occipital.
B. Parietal.
C. Temporal.
D. Both A and C.
E. All of the above.

2. Which of the following structures is (are) part(s) of the thalamus?

A. The lateral geniculate nucleus.
B. Areas 17, 18 and 19.
C. The superior colliculus.
D. The lateral posterior nucleus.
E. Both A and D.

3. Through which of the following "routes" would important information for *visually guided behavior and hand eye coordination* be processed. (NOTE: Some components may not be included, but those in the list are in the proper order.)

A. Optic chiasm, optic tracts, LGN, optic radiations, and striate cortex.
B. Optic chiasm, optic tracts, pulvinar nucleus, and Areas 18 and 19.
C. Optic chiasm, optic tracts, superior colliculi, and LGN.
D. LGN, lateral posterior nucleus, and extra-striate cortex.
E. Tectum, chiasmic obfuscations, and extra-striate cortex.

4. If an object is presented to the left of fixation (i.e., in the **left visual field**), its image will stimulate the _____ half of each retina. The resulting information will then be processed (at least initially) by cortical areas in _____ of the brain.

A. Left; the right hemisphere.
B. Left; the left hemisphere.
C. Right; the left hemisphere.
D. Right; the right hemisphere.
E. Right; both hemispheres.

5. Which of the following statements is most consistent with the concept of "receptive fields" as we discussed them in class?

A. A cell in the visual system responds only when light strikes that particular cell.
B. The concept of a receptive field ties each visual cell to a specific area of retina.
C. Each point on the retina provides input to just one particular cortical cell; thus, at any given moment, examination of the visual cortex would reveal an exact "picture" of the entire scene spread across the cortical surface.
D. The receptive field is that area of the cell which, when it is stimulated with light, inhibits the activity of the cell.
E. The entire visual field should be described as *the* "receptive field" for vision.

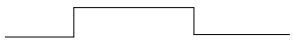
6. Many cortical cells have receptive fields which respond best to stimuli that consist of elongated bars or lines. The orientation of such stimuli is usually critical in determining the strength of the response. For some cortical cells, characteristics such as width, length, or even the speed/direction of motion may also be important.

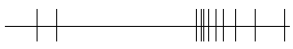
A. True.
B. False.

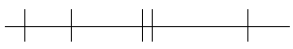
7. The parvo- and magno-cellular pathways in the normal human visual system can be differentiated in several ways. Among these are:

A. Magno-cells have more transient response patterns and faster conduction times.
B. Parvo-cells are mostly found in superior colliculus and tectum, magno-cells in the LGN.
C. When viewed under a microscope, parvo-cells will appear to have multiple dark stripes forming X-shaped patterns; magno-cells will appear transparent.
D. Magno-cells carry more information for color vision than do parvo-cells.
E. All of the above.

8. A brief stimulus is presented to the ON-region of the receptive field of a ganglion cell in the **Parvocellular** pathway. Assuming that the intensity is adequate to produce a response, which of the following patterns is most likely to be seen?



A 

B 

C 

D 

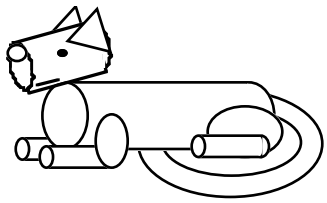
E 

9. Based upon the human Contrast Sensitivity Function (CSF), which of the following statements is **FALSE** with respect to simple, uni-dimensional sine wave gratings?

A. The light and dark bars that make up the pattern can be too wide to be seen.
B. The light and dark bars that make up the pattern can be too narrow to be seen.
C. A pattern with optimal-width bars will be visible, regardless of its contrast.
D. For the majority of people, the most visible pattern involves bars with a spatial frequency of 3-6 cycles/degree.
E. As contrast gets stronger, previously invisible patterns *may* become visible.

10. A major issue in studies of vision concerns the way in which we should conceptualize the overall operation of the visual system. Different theories have been suggested for describing what our brains do when we "see." Which approach might use a picture *such as the one below* to illustrate its primary message?

A. An approach suggesting that vision involves analyzing images into component sine waves.
B. An approach that declares that visual processing occurs almost entirely in the eye; the brain is just a receiver for the resulting tiny "pictures."
C. An approach based on systems for the detection of *more-or-less familiar* structures and objects.
D. An approach that states that we always see random collections of shapes as cats.
E. Either A or B.



11. Our understanding of visual perception now includes the realization that: 1) different visual functions may involve entirely separate neural pathways; and 2) it is only after processing that the information is "seamlessly" reunited in our normal experience of the world around us. Which of the following would represent this sort of "multi-modality?"

A. The lack of any visible vertical division of our visual field into left and right halves.
B. The ability to describe the visual characteristics of an object verbally, while smoothly reaching for it with a hand.
C. The difficulty in seeing continuous motion in a slowly turning disk whose surface is composed entirely of narrow red and green bars of equal brightness.
D. All of the above.
E. None of the above.

12. Fourier Synthesis would predict that one could create a perfect square-wave grating by properly superimposing certain other patterns of light and dark bars. Which of the following sets is most similar to the combination actually required to produce the desired square-wave?

A. A collection of sine waves in which the four components have spatial frequencies that are 2x, 4x, 6x and 7x that of the fundamental.
B. A collection of sine waves differing in spatial frequency and phase, but not in their relative amplitudes (i.e., not in contrast).
C. A collection of all possible spatial frequencies, each one having a phase shift of 30 degrees, relative to the one before.
D. A collection of a great many sine waves, each of which has a spatial frequency that is an odd-integer multiple of the fundamental.
E. All of the above combinations produce virtually the same square-wave pattern.

13. Comparisons of CSF curves are helpful for which of the following?
A. Providing information about the visibility of patterns for people of different ages.
B. Allowing an appreciation for the differences in vision across species.
C. Understanding why a cat sometimes "freaks out" for no reason apparent to us.
D. Both A and C.
E. All of the above.

14. The stage crew for the popular musician, Sheryl Grackle, has a problem. They must illuminate the singer in **purple** light, but have only four colored stage lights (1 blue, 1 green, 1 yellow and 1 red) available. What should they do?
A. Create an additive mix by superimposing blue and red lights on her.
B. Create a subtractive mix by superimposing blue and yellow lights on her.
C. Create an additive mix by superimposing the green and red lights on her.
D. Create a subtractive mix by using the red, green and blue lights simultaneously.
E. Create an additive mix using just the blue and yellow lights.

15. The primary goal in many color-matching experiments using a bipartite field is:
A. To measure how much red, blue and green paint is necessary to match each color.
B. To determine the relative amounts of the different primary lights needed to create perfect metameric matches.
C. To catalog the enormous number of quite different ways in which even color-normal individuals use the same primary lights to match a given test light.
D. To determine the conditions necessary to produce the clearest appearance of a dividing line across the field.
E. Both A and D.

16. Which of the following involves (or will produce) a variation of "hue"?
A. A gradual change in the vividness of a red surface: from red to pink to white.
B. Certain changes in the temporal pattern of a flickering white light.
C. Small gray targets are placed in front of colored backgrounds – one background being a rich blue and the other a strong yellow.
D. Both B and C.
E. All of the above.

17. Which of the following sets of "colors" *could* most readily involve a clear variation in **saturation alone**?
A. White ..... gray ..... black.
B. White ..... red ..... green.
C. Red ..... orange ..... yellow.
D. Blue ..... green ..... yellow.
E. Gray ..... pink ..... red.

18. Paintings like Seurat's "Sunday Afternoon….." are distinctive; in particular, they differ in what way(s) from more conventional paintings?
A. They use an unusual technique for mixing many different paints together, before the paints are ever applied to the canvas.
B. They were created using tiny dots of the additive primaries.
C. They are much larger than any conventional painting.
D. They are much smaller than most traditional paintings.
E. The colors used are almost entirely very dark shades of blue, green and black.

19. Which of the following would be effective as a test for color vision defects?
A. Ask the patient questions about how everyday objects appear in color (e.g., What color does the grass look to you?).
B. Present displays that consist of a great many gray dots. Make sure that some of the dots are darker than the others, to create shapes or numbers.
C. Have the patient do a metameric-matching task and observe his/her use of the three primaries.
D. Both A and C.
E. All of the Above.

20. Todd and Ethan were surprised to find out that they were both red-green color deficient. The ophthalmologist diagnosed Todd as a protanomalous trichromat, whereas Ethan was diagnosed as a deuteranope. Which of the following statements describes a major difference between Todd's and Ethan's conditions.
A. Todd will require three primaries to make a metameric match; Ethan will only require two.
B. All of Todd's cones contain green pigment; all of Ethan's cones contain red pigment.
C. Todd can't discriminate any wavelengths from the middle to the long end of the spectrum; Ethan only has a problem with the short to middle portion of the spectrum.
D. Both B and C.
E. All of the Above.

21. At the level of the cones, normal color vision is "trichromatic." At a higher level, the system seems to involve "opponent processes." Which of the following possible phenomena or findings **would** (IF TRUE) **be** most damaging to the theory of opponent processes?
A. An observation that staring at a bright yellow square results in seeing a blue-square afterimage.
B. Finding that people require *four* distinct "names" to describe the full range of spectral colors.
C. Finding that people frequently report seeing a color they call "greenish-red."
D. The phenomenon of color contrast.
E. All of the above would be inconsistent with the theory.

22. If an individual has a tumor that damages the suprachiasmatic nucleus (SCN), he or she will most likely sleep:
A. The same number of hours as before the injury, primarily during the night.
B. Fewer total hours, and primarily during the day.
C. The same number of hours as before, but at random intervals.
D. Fewer total hours, but primarily during the night.
E. More total hours, and primarily during the day.

23. Frederica arrived in Washington from Moscow two weeks ago. When she first arrived, she experienced terrible “jet lag.” However, she is now in sync with the local timetable. What factor can best account for this “resetting” of her biological clock?
A. Entrainment.
B. Event Processing.
C. Isoluminant Stimuli.
D. Circadian Rhythms.
E. Selective Adaptation.

24. If you presented a research participant with a time interval that was filled with brief tones, and then presented the same time interval without tones, how would the intervals be perceived?
A. The interval without tones would seem longer.
B. The interval with tones would seem longer.
C. Both intervals would seem equal in duration.
D. Whichever interval occurred while the participant was exhaling would seem longer.
E. None of the above.

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THIRD Examination – Sample Multiple-Choice Items

1. As sound is created by a loudspeaker, the molecules of the air immediately surrounding the source are all hurled away at the "speed of sound." This speed varies with different media, being fastest when the surrounding medium is thin (almost a vacuum), being somewhat slower for ordinary air and barely moving at all in fluids or solids.

A. True.
B. False.

2. The decibel scale:

A. Is sometimes adjusted by using so-called "Z-weighting." This procedure automatically disregards sound energy if it falls outside the range of 1-2 kHz.
B. Is a poor way to describe air pressure changes, because most modern industrial machinery produces levels of sound that are unmeasurably high.
C. Is a logarithmically expressed relationship between the pressure variations of a chosen sound and some standard reference value.
D. Provides a convenient way to measure the frequency of pressure changes on a sinusoidal scale.
E. Both A and C.

3. A musician wishes to tune her oboe in relation to the violin. To do so, both musicians play the same note "A". The oboe player notices that the two instruments seem to blend into a single tone that rises and falls in loudness about 1-2 times per second. This sort of waxing and waning indicates to the musician that:

A. The instruments are now in tune.
B. The oboe may be tuned to a frequency that is slightly greater than that of the violin.
C. The oboe may be tuned to a frequency that is slightly less than that of the violin.
D. The next song will be a polka.
E. Either B or C.

4. Which of the following statements describe(s) a characteristic of the **middle ear** that exerts an influence upon our ability to hear?

A. During normal hearing, the eardrum moves a greater distance than the stapes.
B. The eardrum is larger than the stapes' footplate and concentrates force on the oval window.
C. During intense noise, the stapes may change its pattern of movement against the oval window, thereby reducing the energy that can enter the inner ear.
D. Both A and B.
E. All of the above.

5. Which of the following does **NOT** describe the basilar membrane?

A. The traveling wave reaches its greatest height at different locations, depending on frequency.
B. Movements of the cochlear fluids initiate a traveling wave in the membrane.
C. The width of the membrane increases from the base to the apex.
D. The stiffness of the membrane is the same from one end to the other.
E. The basilar membrane is one of the membranes that separate the canals of the cochlea.

6. Which of the following statements about hearing receptors is (are) **TRUE**?

A. **Outer** hair cells move in response to neural signals, as well as in response to incoming sounds.
B. Hair cells typically respond when the stria vacularis rubs against the organ of Corti.
C. There are usually six rows of **outer** hair cells extending along the length of the tectorial membrane, but only four rows of **inner** hair cells.
D. Both A and C.
E. All of the above.

7. An "audiogram":
A. Represents an individual's ability to hear sounds of various frequencies.
B. Is a small audio loudspeaker used in research, because it weighs only a few grams.
C. Shows the results of testing hearing loss at selected frequencies (usually between 250–8k Hz).
D. Indicates “normal” hearing as a flat line across the top of the graph.
E. All except B.

8. An airline pilot had a stop-over in Chicago. While waiting for his next flight, he decided to order a large, **non**-alcoholic drink. If he wished to be especially careful that his hearing and sense of balance were in optimal condition, which of the following should he perhaps avoid?
A. Tonic water.
B. Coca Cola™.
C. Diet, caffeine-free Pepsi™.
D. Water.
E. Coffee, tea and/or milk.

9. Which of the following situations clearly describe(s) a **sensorineural** hearing problem?
A. A 5-year old who suffers from chronic middle ear infections.
B. A 32-year old women whose stapes is slowly becoming attached to the wall of her middle-ear.
C. A 28-year old boxer, who receives a sharp blow to the head, causing a misalignment of his ossicles, but no other damage.
D. All of the above.
E. None of the above.

10. So-called “active” noise control techniques differ from more traditional techniques such as using earmuffs or earplugs, in that muffs or plugs attempt to block noise from reaching the ear. Active control involves the generation of additional sounds that vary from the original (unwanted) sound in what way(s)?
A. Frequency.
B. Phase.
C. Sound level.
D. Frequency and phase.
E. All of the above.

11. You own a large manufacturing company that has several hundred employees who work with heavy machinery and pneumatic tools. The noise in your factory averages 98 dBA. According to OSHA regulations, which of the following requirements apply?
A. Employees who begin to show hearing loss should be fired for their own good.
B. You should encourage all your employees to attend a voluntary workshop on hearing.
C. Your supervisors should suggest to their crews that wearing hearing protectors is a good idea that ought to be seriously considered.
D. You should be certain that each worker is given a regular hearing test.
E. All of the above.

12. The father of one of your friends has worked in a textile mill his entire life. Your friend is sad that she must shout for him to hear her. Most likely he is suffering from the combined effects of noise-induced hearing loss and presbycusia. Which of the following frequency ranges was probably damaged mostly by his exposure to noise?
A. 20-200 Hz.
B. 100-1000 Hz.
C. 3k-6k Hz.
D. 14k-20k Hz.
E. 20-20,000 Hz.

13. Consider a **pure tone** of **8000 Hz** presented at a sound-level of **30 dB**. If you increased its sound-level to 60 dB, you should probably expect which of the following changes to occur?
A. The pitch would not change at all, although the loudness would increase.
B. The pitch would seem to get higher.
C. The pitch would seem to get lower.
D. The loudness would seem to fluctuate, because of distortion in the ears.
E. Both C and D.

14. You have found a special CD that includes several test tones for checking audio equipment. One of these tones is a pure tone of **450 Hz**. You decide to find out what such a tone would sound like, if amplified at the highest level your stereo can produce. Even if you do not damage your equipment, which of the following would describe the resulting output?
A. The shape of the output's "wave" form would not be a sine wave.
B. In addition to 450 Hz, the amplified sound would include several other frequencies.
C. The output would be affected by both linear and non-linear distortion.
D. The output would be affected by harmonic distortion.
E. All of the above.

15. Which of the following psychophysical "dimensions" or units does **NOT** describe a **perceptual** experience?
A. Volume.
B. Sones.
C. Mels.
D. Decibels.
E. Loudness.

16. Which of the following is consistent with the concept known as a "cone of confusion?"
A. The term "cone of confusion" is actually inappropriate, since all locations of confusion fall on the flat azimuth plane, neither above nor below ear level.
B. If two sound sources are both in the same quadrant (e.g., between 0 and 90 degrees azimuth), they will often be confused with each other.
C. A sound source at 90 deg RIGHT will always be very difficult to discriminate from one that is 90 deg LEFT.
D. Sound sources at equivalent angles to the body's mid-line (and on the same side of the body) may be readily confused, in terms of their directions.
E. Your difficulty in deciding between chocolate and strawberry ice cream on your sugar cone.

17. **Binaural** cues for localizing the azimuth of a sound include differences based upon:
A. The ease/difficulty with which various sounds can diffract around the head.
B. The delays produced by reflections in the structures of the pinna.
C. The acoustic properties of the room in which testing is done. Binaural cues are only available when a room has walls that reflect a lot of the sound.
D. Both A and C.
E. All of the above.

18. A blindfolded observer is standing in an **anechoic chamber**. Her task is to report verbally the perceived distance of each of three unfamiliar bursts of noise. Each burst originates from a loudspeaker physically 15 feet in front of her. The bursts **increase in intensity** from the first to the second to the third. Which of the following might likely be her report?
A. "100 feet; 10 feet; 1 foot."
B. "2 feet; 1 foot; 6 inches."
C. "15 feet; 15 feet; 15 feet."
D. "20 feet; 25 feet; 30 feet."
E. "10 feet; 12 feet; 15 feet."

19. Which of the following statements about speech is (are) **TRUE**?
A. Consonants can often be identified in speech spectrograms by formant transitions.
B. Different vowel sounds roughly correspond to different frequency positions of the first and second formants.
C. So-called "stop" consonants, such as the "t" in tea and the "k" in keep, are formed when air is suddenly released from the lungs.
D. A basic language unit is called a "phoneme." Different languages make use of different numbers of phonemes, although some require as many as 60, to distinguish all the words.
E. All of the above.

20. In her research concerned with the subjective "space-filling" aspect of sounds, Dr. Thomas provides listeners with a 1 kHz tone at a moderate intensity. If she then **lowers the frequency** of the tone (with no other changes), she will discover that:
A. The new tone has *less* volume than the original tone.
B. The new tone seems to fill *more* of the space around the listener.
C. The changes in frequency have no effect on perceived volume.
D. Frequency only affects volume, if sound level is changed at the same time.
E. None of the above.

21. Regarding our sense of smell, which of the following is (are) **TRUE**?
A. The sensitivity of individual smell receptors is practically equal for dogs and humans; dogs simply possess many more receptors with many more cilia.
B. While anosmias (odor blindnesses) are well documented, they remain rare, with no more than 1 person out of 10,000 being anosmic for any given odor.
C. The sense of smell is the only human sense that becomes **more** sensitive to a stimulus (odor) with prolonged exposure, making it difficult to ignore a sweaty classmate or the rotting eggs in your refrigerator.
D. Perceived odor intensity depends solely upon the number of molecules entering the nose.
E. Both B and C.

22. Strong stimulation of the "common chemical sense" by hot spices can produce the experience of having a "burning" mouth. With respect to solving this problem, which of the following statements is (are) **TRUE**?
A. The most effective liquid for relieving the pain is usually beer.
B. The effectiveness of different liquids in relieving the pain is primarily a function of their temperature; surprisingly, warmer liquids work best.
C. The effectiveness of different liquids in relieving the pain is partly a function of their taste; sweet and sour tastes work better than bitter ones.
D. The most effective liquid for relieving the pain should be cool and very salty.
E. Both A and B.

23. The receptors for taste are known as taste buds. These buds tend to be grouped into clusters that are found on all four types of the tongue's papillae. Individual taste receptors usually develop significantly over the first 6 months of life and then remain more-or-less unchanged right into advanced old age.
A. True.
B. False.

24. As people age, there are several changes in their perceptual capabilities. Such changes include a need for increased levels of illumination, in order to resolve small visual details. Another change involves a significantly poorer sensitivity for odors and tastes.
A. True.
B. False.

****

FINAL Examination – Sample Multiple-Choice Items

1. The **Faces-Vase** drawing is a prime example of the Gestalt notion(s) that:
A. We tend to divide images into two perceptual regions: Figure and Ground.
B. We can perceptually reorganize images so that the original figure and ground regions are perceptually reversed.
C. We tend to perceive a figure region as an area that has shape and seems to be closest.
D. Perception is a passive process in which we simply "register" the information that is presented to us in the image.
E. All of the above, except D.

2. Most people would report that the dots below form 3 horizontal lines. Which Law of Organization most explicitly predicts such an experience (as opposed to some other perceptual organization)?

. . . . . .
. . . . . .
. . . . . .

A. Law of Proximity.
B. Law of Similarity.
C. Law of Closure.
D. Law of Smooth Continuation.
E. Prägnanz Principle.

3. Using the language distinctions we discussed in class, how could the following symbolic expression be stated in English? $\mathbf{d'_{AB} = D_A}$

A. The apparent depth between objects A and B equals the apparent distance to object A.
B. The distance between objects A and B equals the distance between me and object A.
C. Object A appears as far from me as objects A and B are from each other.
D. The apparent depth between objects A and B equals the distance from me to object A.
E. None of the above.

4. The idea that information about **changes** in the binocular relationship of the **extraocular muscles** can affect our perceptions of depth/distance is most consistent with which of the following cues?
A. Relative convergence.
B. Absolute accommodation.
C. Motion parallax.
D. Binocular disparity.
E. Both A and D.

5. If a visual display involves several cues to the relative depth positions of objects in the display, and if some of those cues are in "conflict," then the appearance of the display will usually be most determined by those cues:
A. Between objects in the display that are most nearly equal in size.
B. Between objects in the display that are least adjacent to one another.
C. Between objects in the display that are in close proximity to one another.
D. That involve the factor of accommodation.
E. Both A and D.

6. **Aerial perspective** is a cue that artists have used in their paintings to create or enhance a sense of 3-D depth. Which of the following techniques might he/she employ, in using this cue?

A. Forcing the viewer to change focus when looking at different portions of the picture.
B. Providing fewer details for portions of the picture that should seem far away.
C. Changing the dominant colors used for different portions of the picture.
D. Interrupting the borders of some regions, to make those regions seem farther away.
E. Both B and C.

7. When the Ames' trapezoidal window is observed while it rotates, which of the following effects is likely to be observed by an observer located 15-20 feet away from the display?

A. The window will appear to be much larger than it really is.
B. The window will appear to be much smaller than it really is.
C. The "window" will seem to be stationary, despite its continuous physical motion.
D. The "window" will only seem to rotate all the way around if the observer closes one eye; with both eyes open, the window will always seem to oscillate.
E. The "window" will mostly appear to oscillate back and forth, seemingly keeping the same end toward the observer.

8. After finishing your Final Exam in Perception, you decide to stroll leisurely across campus. As you walk past a low building, you notice how close the library tower seems when viewed over the roof of the closer building. Because you studied exhaustively for this Final, you immediately attribute your misperception of the library's distance to the:

A. Adjacency Principle.
B. Interposition Cue.
C. Familiar Size Cue.
D. Equidistance Tendency.
E. Scalar Disparity Tendency.

9. Which of the following statements regarding motion perception is (are) **TRUE**?

A. Real movement is both necessary and sufficient for perceiving motion correctly.
B. The muscle activity of our eyes provides all the information necessary to accurately perceive both the amount and direction of movement.
C. Observers are likely to misperceive the speed of movement if they misperceive the distance to a moving object.
D. One can only perceive an object as stationary if the eyes are also perfectly still.
E. None of the above are true.

10. An observer looks at a stationary spot of light in an otherwise completely dark room. Surrounding the spot, and at the same distance, is a luminous rectangular frame. The experimenter now moves the frame slowly to the left (just above the threshold for seeing *relative* motion). Which of the following reports would you expect from the observer?

A. "The frame appears to be moving to the left."
B. "The spot appears to be moving to the left."
C. "The spot appears to be stationary."
D. "The spot appears to be moving to the right."
E. "I was staring at the spot and the frame so steadily that they both faded from view."

11. In studies of perceptual development and change, a distinction is made between processes that demonstrate "enhancement" and those that demonstrate "facilitation." In each case an individual will develop some particular perceptual skill by adulthood. The difference involves whether or not the final level of that perceptual ability will be affected by appropriate experiences during development. **Enhancement** implies that such experience will improve the final level attained, whereas **facilitation** only indicates that experience will speed the rate at which the ability develops, not its final level.

A. True.
B. False.

12. Assume that an observer is watching a visual target move across his/her field of view. The observer is physically stationary (and feels no personal movement). The observer always correctly perceives the direction to the target. Based on your knowledge of the **velocity-distance invariance relationship**, what would you predict might be going on, if the observer tended to report a perceived velocity that was less than the actual velocity?

A. Based upon the information given, no prediction is possible.
B. Should predict that the person is under-perceiving the distance to the target.
C. Should predict that the person is correctly perceiving the distance to the target.
D. Should predict that the person is over-perceiving the distance to the target.
E. Should predict that the person does not understand the instructions.

INSTRUCTIONS and EXPECTATIONS for PART 2 of PSY 400 EXAMS, followed by Sample Items for the Three In-Class Exams

"Read over this section of the examination before you begin work. Think *before* you answer a question, because the clarity with which you express your ideas is very important. Make sure that what you write actually says just what you meant to write.

"Please write **ALL** answers for Part 2 on the attached pages and INDICATE WHICH ITEMS YOU ARE ANSWERING. Also, please check (√) these same items on the exam itself. (You may have extra paper, if you need it.) When you are finished, turn in BOTH the exam itself AND the answer pages; be sure that your name is on the first page.

"Identify, define or otherwise describe any **FOUR** (4) of the terms listed. You may include figures or formulae as part of an answer, but do **not** just put a figure or formula; describe what is referred to in words. A good identification should include *both* a basic definition of the term *and* either a clear example or some extra detail or some indication of the context in which one would use the term.

"Each item is worth 0-3 points."

Expectations – Written Responses for Part 2

The following examples are **not** intended to be memorized. They are supposed to serve as **idealized** responses worth various numbers of points. For exams in PSY 400 (Perception), each ID response is intended to convey a "well-rounded package" of information about the topic involved. For example:

Power Law of Psychophysics

(ID item; max = 3 points)

0 points: blank (no response); or
description of different (wrong) item; or

"A law that deals with psychophysics. It involves how physical and psychological things relate."

1 point: "The law that Stevens developed to describe the results of his psychophysical scaling experiments. The exponent **m** varies."

2 points: "The Power Law of psychophysics (Stevens) states that $\mathbf{S = a \times I^m}$ where **S** is the magnitude of some subjective experience, **I** is a physical measure, and **m** is an exponent which varies for different sensory dimensions."

3 points: "The Power Law of psychophysics states that $\mathbf{S = a \times I^m}$ where **S** represents the magnitude of some subjective experience (such as perceived brightness), **I** represents a related physical measure (such as the intensity of a light), and **m** is an exponent that varies for different sensory dimensions. S. S. Stevens developed the Power Law to describe the results of his experiments in psychophysical scaling. He found that **m** may be less than 1 for some dimensions (like brightness), but more than 1 for others (like electric shock)."

*Note: In previous semesters, exams for PSY 400 also included items described as "**Compare and Contrast**." Such items no longer appear on these exams. For this semester, items in Part 2 will always be of the sort discussed above.*

Comments on Examination Notations & Scoring

Following is an attempt to indicate what some of the notations you may find on your examination papers mean. If the instructor's concerns are still not clear, after looking over your examination with the aid of this list, then please make an appointment to go over it in more detail.

√ = a particularly good, correct, or well-expressed statement.

X = a statement in clear error.

IR = irrelevant; information with little or no apparent relationship to question; statement(s) may or may not be correct.

??? = unclear; not specific; multiple possible meanings (you may know what you intended to say, but what you actually wrote has alternative interpretations that may not be correct).

MORE = answer is insufficient; so much more information is available that you really should have expanded on your answer.

NLNM = no labels; no meaning. Often used for graphs or drawings that lack one or more critical labels.

sp = spelling error -- no separate penalty (unless word not interpretable).

gram = grammatically weak or an error. Frequently noted for use of constructions such as: "is when" or "is why." No penalty (unless response not interpretable).

RD = redundant material which does not add to answer; no penalty, except your loss of time. Clarifying statements or those that elaborate are fine, but don't "pad."

Crossed-out = statement not true; and/or redundant with previous statements; and/or a better construction is possible (usually a suggestion will be given).

The total number of comments does not always reflect the evaluation --- some good answers are marked up in an effort to make them better by suggesting specific improvements; some poor ones (especially if they lack detail or have a really confusing verbal style) may have relatively few marks. The number of grade points assigned is the best indicator of an answer's overall evaluation.

More Explanation of Scoring

3 = sufficient detail; no misstatements; clear presentation

2 = satisfactory; may lack some supporting detail; often has detail(s) expressed in confusing or ambiguous manner.

1 = has something, but lacks any detail or contains serious errors (usually too skimpy or unclear or both).

0 = too far off target for any points (note that even a fairly good answer to the *wrong* identification will usually result in "0" points).

Benefit of the Doubt

If you see a notation such as "0-1" or "2-3" next to an answer, it means that I felt the answer was borderline. The notation is to let you know, so that you can try to improve. The grade actually assigned for the answer in such situations is **always** the higher one.

SAMPLE Identification (ID) Items for Part 2

First Examination

____ THE JND
____ ROC CURVE
____ NYSTAGMUS
____ PRESBYOPIA
____ CATARACTS
____ WEBER'S LAW
____ VESTIBULAR SYSTEM
____ THE THREE "CLASSICAL" METHODS
____ TONIC ACCOMMODATION
____ RETINAL RECEPTORS
____ SPECTRAL SENSITIVITY CURVES
____ GLAUCOMA
____ VERSION EYE MOVEMENTS
____ DARK ADAPTATION CURVES

Second Examination

____ PRIMARY VISUAL SYSTEM
____ RECEPTIVE FIELD
____ MAGNOCELLULAR PATHWAY
____ FOURIER EQUIVALENCE
____ COLOR MIXTURES
____ HUE (and how to vary)
____ PROTANOPIA
____ VISUAL AGNOSIAS
____ OPTIC CHIASM (include the importance of)
____ CONTRAST SENSITIVITY FUNCTION
____ FEATURE DETECTION APPROACH
____ SELECTIVE ADAPTATION EXPERIMENT
____ GRAHAM & HSIA'S UNUSUAL SUBJECT
____ AQUIRED COLOR VISION CHANGES
____ SUPRACHIASMIC NUCLEUS
____ PERCEPTUAL MOMENT

Third Examination

____ DECIBEL SCALE
____ MIDDLE EAR
____ OTOTOXIC DRUGS
____ PERIODICITY PITCH
____ AUDITORY MASKING
____ VISUAL CAPTURE
____ ATTENTIONAL GAZE
____ HAPTIC PERCEPTION
____ EQUAL LOUDNESS CONTOURS
____ CONDUCTIVE HEARING IMPAIRMENTS
____ TRAVELING WAVE (in the ear)
____ PINNA CONTRIBUTIONS (to localization)
____ BINAURAL TIME DIFFERENCE CUE
____ ACTIVE HEARING PROTECTION
____ GATE-CONTROL THEORY
____ DOLORIMETER

FINAL EXAMINATION

FORMAT FOR FINAL

Part 1 (Objective Questions):

Section 1	9 items (x 1 pt. each)	=	9
Section 2	9 items (x 1 pt. each)	=	9
Section 3	9 items (x 1 pt. each)	=	9
Section 4	33 items (x 1 pt. each)	=	33

Max for Part 1 = 60 pts.

Part 2 (Identification Items):

Sections 1, 2 and 3 -------- FOUR items (x 3 pts. each) = 12

(These ID items will be on a COMBINED LIST; you may choose items from *any of the three* earlier sections to make up the four required items.)

Section 4 ---------- SIX items (x 3 pts. each) = 18

(These ID items will be on a list that is *separate* from the list covering the earlier parts of the course; you will also need to choose six items from *this* list.)

Max for Part 2 = 30 pts.

Maximum Total for Final Exam. = 90

Preparation and Planning:

The best preparation for the review portions of the Final is probably to go over the three earlier exams thoroughly. Most of the multiple-choice questions will be similar to the earlier questions or will draw upon the same information. In fact, many may be identical, except for possible scrambling of answer choices.

Note that for the Review Portion of Part 2, you will have a choice of items. There will be a sufficient number of IDs from the previous exams that you *could* choose your four items entirely from those you've seen before. Alternatively, you *could* choose all four items from the same section of the course. This is neither advised nor discouraged; you should plan your studying to fit your time and confidence across the topics.

With respect to the Final Examination……There are intentionally fewer sample multiple-choice questions and no explicit sample IDs. By the end of the course, having used this ***Samples & Information*** book, and having taken three examinations yourself, you should be able to: (1) Study effectively without the extra aid of so many m-c questions; and (2) Be able to predict a good selection of potential ID items – from the organization of the lecture material and the structure of the textbook content.

Because of the relatively short time between the scheduled Final examination and the due-date for course grades, you are expected to take the Final Examination with your class. Students having special circumstances should see their instructor ASAP about any re-scheduling of the examination. (This does *not* include ordinary "convenience" switches, to allow one to leave campus earlier than otherwise.) Note that late "make-up" Examinations will usually not be possible.

Determination of Final Course Grade

No letter grades are given for individual examinations. Your final course grade is based on your total performance across the examinations (see below for elaboration). The method for determining your grade *begins with* the total number of points you earn on the three in-class examinations and the Final Exam. There are a possible total of 210 points overall.

The maximum requirements for each letter grade (including + and – grades) are shown below. Although it is not likely, it is *possible* that these "boundaries" could be lowered, if any peculiarities in the score distribution seem to warrant it. The boundaries will *not* be raised.

Total Pts	Grade	Total Pts	Grade	Total Pts	Grade
200 & up	A+	159 & up	B	129 & up	C–
185 & up	A	155 & up	B–	125 & up	D+
181 & up	A–	151 & up	C+	115 & up	D
177 & up	B+	133 & up	C	111 & up	D–
				≤110	F

Rewarding Improvement

Before the final letter-grades are assigned, individual patterns of performance will be examined. If a student who did poorly on the first examination(s) demonstrates by later performance that he/she has mastered the material, then the student's total score will be raised by an extra 4 points. The factors considered in deciding on this improvement-bonus may include:

a. the degree of improvement over the semester;
b. performance on the review portion of the Final Exam;
c. whether performance on the entire Final Exam (if used to judge total performance) would place the student in a higher grade category.

Finally, remember --- there are no "extra-credit" projects, papers, etc. If you are worried about your grade, the best plan is to put your efforts into studying for the remaining examinations. Also, feel free to ask your instructor to go over the earlier exams with you in detail. Sometimes it's possible to suggest where to concentrate your efforts or elaborate about what you should work on.

A final note on the semester schedule*…….Although it is expected that exams will occur as shown in the syllabus, we are naturally subject to the whims of weather, illness, emergencies, etc. If the university is closed, the instructor is ill, or other conditions preclude holding class on a particular day, then the dates for remaining exams* ***may*** *be shifted or postponed. (In such an event, students will be notified of the revised schedule, through email, at the earliest time possible.)*

BEST ANSWERS FOR PART 1 (PSY 400)

Examination #1	Examination #2	Examination #3
1. D	1. E	1. B
2. A	2. E	2. C
3. B	3. B	3. E
4. B	4. D	4. E
5. A	5. B	5. D
6. A	6. A	6. A
7. C	7. A	7. E
8. E	8. D	8. A
9. C	9. C	9. E
10. E	10. C	10. B
11. A	11. D	11. D
12. C	12. D	12. C
13. C	13. E	13. B
14. E	14. A	14. E
15. D	15. B	15. D
16. E	16. D	16. D
17. B	17. E	17. A
18. D	18. B	18. B
19. E	19. C	19. E
20. C	20. A	20. B
21. D	21. C	21. A
22. B	22. C	22. C
23. C	23. A	23. B
24. E	24. B	24. A

FINAL Examination

1. E	4. A	7. E	10. D
2. A	5. C	8. D	11. A
3. D	6. E	9. C	12. B